KROKHIN, S. I.

42286. KROKHIN, S. I. - Obogashcheniye svintsovo-tsinkovykh rud v tyazheloy suspenzii. Trudy Sev.-Kauk. gorno-metallurg. in-ta, VYP. s, 1948, s. 3-19.

SO. Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

Krokhin, S.I.

137-1-107

Translation from: Referativnyy Zhurnal, Metallurgiya, 1957, Nr 1, p. 9 (USSR)

AUTHOR: Krokhin, S.I.

TITLE: Flotation Rate (O skorosti flotatsii)

PERIODICAL: Tr. Severo-Kavkazsk. gorno-metallurg. in-ta, 1956, Nr 13, pp. 3-20

ABSTRACT: To clarify the relation between the mean flotation rate (F) and time, numerous laboratory experiments were run on the F of pure mineral MoS_2S. [illegible] and $PbS-SiO_2$ mixtures and the F of Mo and Pb-[illegible] ores. It is demonstrated that the relationship in question is of a general character both in the case of mineral mixtures and of ores. One finds two periods having different laws for the changes in the F rate of each of these periods. The first period (free F), which lasts from 1 to 6 minutes, follows the equation for the mean F rate proposed by Professor Beloglazov; the second period (turbulent F) follows the equation for the F rate of the second order proposed by

Card 1/2

Flotation Rate (cont.) 137-1-107

Professor Mitrofanov. The basic factor causing free F to change into turbulent F, according to the author, is a change in the strength of adhesion of mineral particle. New equations for the mean and actual F rates are given on the basis of an analysis of the experimental data.

Card 2/2

M.L.

KROKHIN, S.I.

137-58-4-6387

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 8 (USSR)

AUTHOR: Krokhin, S. I.

TITLE: Comparative Evaluation of Kerosene and Oil Reagents Used in Flotation of Molybdenite (Sravnitel'naya otsenka kerosina i maslyanykh reagentov primenyayemykh pri flotatsii molibdenita)

PERIODICAL: Sb. nauchn. tr. Severo - Kavkazsk. gorno-metallurg. in-t. 1957, Nr 14, pp 105-117

ABSTRACT: The object of the work was to provide a comparative evaluation of the reagents most widely used in the USSR: kerosene (K), transformer oil (TO), and SV machine oil (MO). The effects of these reagents on the variation in the wettability of mineral surfaces and foaming was studied separately. The following are the findings: Commercial K contains a substantial amount of volatile fractions (under 150-180°) not capable of flotation. More effective reagents are provided by high-boiling fractions of K (180-220° and over 220°), which increase the hydrophobic nature of MoS_2 and improve foaming. The absence or diminution of polar compounds in K impairs its flotation qualities. TO and MO are similar to the high-temperature fractions of K in their

Card 1/2

137-58-4-6387

Comparative Evaluation of Kerosene and Oil Reagents (cont.)

flotation properties. However, TO impairs foaming, while MO and K improve it. The distillation fractions of TO and MO provide no differences in the properties observed. Addition of a small amount of pine oil makes it possible to control the size of the bubbles. In the experiments conducted on the flotation of MoS_2 in a mixture with SiO_2, the highest level of extraction of MoS_2 was obtained when MO or K fractions were charged along with pine oil (10 g/t).

A. Sh.

1. Molybdenite--Flotation 2. Flotation--Processes 3. Oils--Applications

Card 2/2

KROKHIN, S.I.

137-58-4-6395

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 9 (USSR)

AUTHORS: Yeremin, P. F., Krokhin, S. I., Maksimovich, I. Yu.

TITLE: Beneficiation of the Manganese Ore of the Labinsk Deposit (Obogashcheniye margantsevoy rudy Labinskogo mestorozhdeniya)

PERIODICAL: Sb. nauchn. tr. Severo-Kavkazsk. gorno-metallurg. in-ta, 1957, Nr 14, pp 118-126

ABSTRACT: The results of a study of the capabilities of beneficiation of the Mn ores of the Labinsk-deposit, the major ore minerals of which are rhodochrosite and Ca rhodochrosite, are set forth The chemical composition of various samples is presented. The properties of the ore minerals and their fine dissemination, with intimate intergrowth with calcite, provides the basis for classifying this ore as non-gravitational. Experiments in jigging and concentration on the table have confirmed this. Flotation can be attained only at a high cost in oleic acid and water glass and with two steaming operations performed at high temperature. Satisfactory results were obtained when liquid soap was substituted for oleic acid at steaming temperatures of up to 40° C. By

Card 1/2

137-58-4-6395

Beneficiation of the Manganese Ore of the Labinsk Deposit

flotation with prior washing of the dissolved salts it is possible to obtain concentrates containing 29-30 percent Mn and 89 percent recovery thereof The Mn contents may be increased to 40 percent by roasting at 400-500°.

A. Sh.

1. Ores--Processes 2. Flotation--Applications

Card 2/2

SOV/137-58-12-23935

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 4 (USSR)

AUTHORS: Krokhin, S. I., Nekrasov, B. D.

TITLE: Flotation Separation of a Copper-cobalt Concentrate (Flotatsionnoye razdeleniye medno-kobal'tovogo kontsentrata)

PERIODICAL: Tr. Sev.-Kavkazsk gornometallurgich. in-ta, 1957, Nr 15, pp 166-175

ABSTRACT: Selection of bulk concentrate by the following flowsheet: 2 thickenings and washings, fine grinding, primary copper-pyrite flotation and one secondary, yields copper-pyrite concentrates containing 0.166% Co and 0.93% losses. Cu extraction is 80%. The reactants are 10 g xanthate and 40 g DS frothers per ton. Separation of cobaltite from pyrite involves high Co losses.

A. L.

Card 1/1

SOV/137-58-10-20396

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 6 (USSR)

AUTHOR: Krokhin, S. I.

TITLE: The Flotation Rate Equation (Ob uravnenii skorosti flotatsii)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, razdel "Tsvetnaya Metallurgiya", 1958, Nr 1, pp 28-41

ABSTRACT: A verification, on the basis of experimental results obtained by other authors, is presented of conclusions previously suggested (RZh Met, 1957, Nr 6, abstract 9492; Nr 11, abstracts 20782 & 20784) to the effect that the kinetic regularities of flotation indicate that it proceeds by two stages. The verification confirmed that two distinct periods are observed in the process of flotation. During the first period, variation in the mean rate of flotation proceeds primarily in accordance with the equation of K. F. Beloglazov, and in the 2nd by the equation of S. I. Mitrofanov. The author advances his own kinetic equations for the entire flotation process, comprising both periods. Bibliography: 12 references.

1. Flotation--Mathematical analysis

Card 1/1 B. L.

KLASSEN, Villi Ivanovich, prof., dokt.tekhn.nauk; MOKROUSOV, Vladimir Alekseyevich, kand.tekhn.nauk; KROKHIN, S.I., dotsent, retsenzent; TROITSKIY, A.V., inzh., red.; YEZDOKOVA, M.L., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Introduction to the flotation theory] Vvedenie v teoriiu flotatsii. Izd.2., dop. i perer. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 636 p. (MIRA 13:3)

1. Zaveduyushchiy kafedroy obogashcheniya SKGMI (for Krokhin).
(Flotation)

KROKHIN, S.I.; CHEREMUKHINA, R.I.

Mechanism of the effect of kerosene in flotation. Izv.vys.ucheb.zav.; tsvet. met. 2 no.1:26-40 '59. (MIRA 12:5)

1. Severokavkazskiy gornometallurgicheskiy institut. Kafedra obogashcheniya poleznykh iskopayemykh.
(Flotation) (Kerosene)

KROKHIN, S.I.

Linear adsorption of oil reagents along a three-phase wetting perimeter. Izv. vys. ucheb. zav.; tsvet. met. 2 no.3:31-36 '59.
(MIRA 12:9)

1.Severokavkazskiy gornometallurgicheskiy institut, Kafedra obogashcheniya poleznykh iskopayemykh.
(Flotation--Equipment and supplies)
(Surface chemistry)

KROKHIN, S.I.; CHEREMUKHINA, R.I.

Effect of flotation regulators on the linear adsorption of oil reagents on the three-phase wetting perimeter. Izv.vys. ucheb.zav.;tsvet.met. 2 no.4:27-35 '59. (MIRA 13:1)

1. Severokavkazskiy gornometallurgicheskiy institut. Kafedra obogashcheniya poleznykh iskopayemykh.
(Flotation--Equipment and supplies)
(Surface tension)

18.2000

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SOV/149-60-1-6/27

AUTHORS: Krokhin, S. I., Matveyev, I. I.

TITLE: Dressing of Lead-Zinc Ore Tailings from Sadon Deposit in Heavy Suspension

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960, Nr 1, pp 43-49 (USSR)

ABSTRACT: Preliminary dressing of ores in heavy suspension is economically advantageous because it permits processing coarse crushed ores. The present work is a study of processing old lead ore tailings of the Sadon deposit containing 0.45% Pb, 0.81% Zn, 0.06% Cu. Their main component is quartz (79.6%). Ore inclusions consist of galenite, sphalerite, pyrite, and chalcopyrite. Preliminary laboratory tests consisted in crushing the material into sizes ranging from -40 mm to + 3 mm (-3 mm was eliminated). This crushed material was separated according to its specific weight into two fractions <2.73 and >2.73 yielding 56.[illegible] of the [illegible] and

Card 1/[illegible]

Dressing of Lead-Zinc Ore Tailings from Sadon Deposit in Heavy Suspension

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13.33% of the latter. Rate of extraction of metals into the latter: Pb 93.74%, Zn 70.82%. The metal content in this concentrate: Pb 3.01%, Zn 4.23%. The laboratory separation was done on Margolin balance (large pieces) and by a heavy liquid, bromoform (small pieces). The distribution of metal was uniform in all fractions of the same group. This test was followed by another using unclassified material (-25 + 3 mm) and a heavy suspension consisting of pulverized (105 to-5 microns) lead concentrate from the Mizur dressing plant (Mizurskaya Obogatitel naya fabrika), specific weight 6.59. The separation was done in a laboratory cone, diam 400 mm at 18 rpm and the results were about the same as in the previous test with bromoform separation: 65.9% tailings with a 0.042% Pb content (Zinc was 0.30%), 12.05% concentrate with 2.5% Pb, and 3.52% Zn. This concentrate was crushed to -3 mm, mixed with the

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Dressing of Lead-Zinc Ore Tailings from Sadon Deposit in Heavy Suspension

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previously eliminated 3 mm fraction of original untreated tailings in a proportion 36:64, and dressed by flotation under the following conditions: 70 to 75% of the fractions were mesh - 0.074 mm; reagents were - 0.5 kg/ton calcinated soda, 1 kg/ton zinc sulfate, and 0.5 kg/ton sodium hyposulfite. For lead flotation 40 g/ton xantate and 15 g/ton terpinol were added; for zinc flotation, 1.5 kg lime (during agitation) and 0.5 kg $(CuSO_4 + NH_4OH)$, 40 g/ton xanthate, and 60 g/ton terpinol were added, as well as 50 g/ton NaCN to first lead re-run and 0.5 kg/ton lime to first zinc re-run. Flotation time was 12 min for lead and 20 min for zinc. Flotation results show it is easy to obtain a lead concentrate with 59.0% lead content (extraction rate 77.78%), and zinc concentrate containing 41.90% Zn (extraction rate 43.40%). Extraction rates refer to the ore tailings. A higher Zn extraction rate was investigated by finer crushing

Card 3/4

Dressing of Lead-Zinc Ore Tailings from Sadon Deposit in Heavy Suspension

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SOV/149-59-1-6/27

(86% mesh - 0.074 mm) and the 40g/ton cresol addition for lead flotation and 45 g/ton aerofloat for Zn flotation. A Zn extraction rate of 51.9% was achieved. A control flotation of original material (omitting heavy suspension dressing) in three re-runs was carried out. Comparison with previous test results showed a much superior concentrate is obtained from the combined operation, while metal losses in tailings are 2.60% lower for Pb and 4.7% higher for Zn. In his conclusions the author recapitulates the above data stating that despite poor metal content zinc-lead tailings of the Sadon deposit preprocessed in heavy suspension are of industrial importance. There are 6 Tables, 4 Figures

ASSOCIATION: North Caucasian Institute of Mining and Metallurgy. Chair of Ore Dressing (Severokavkazskiy gornometallurgicheskiy institut, Kafedra obogashcheniya poleznykh iskopayemykh)

SUBMITTED: May 21, 1959

Card 4/4

KLASSEN, V.I.; KROKHIN, S.I.

Concentration of xathogenate along a three-phase contact in flotation.
Dokl. AN SSSR 136 no.4:886-888 F '61. (MIRA 14:1)

1. Predstavleno akademikom P.A. Rebinderom.
(Xanthic acid) (Flotation)

KLASSEN, V.I.; KROKHIN, S.I.; TIKHONOV, S.A.

Effect of halation by a nonpolar reagent of the area of contact of abubble with a mineral particle on their force of adhesion in flotation. TSvet. met. 35 no.4:9-11 Ap '62. (MIRA 15:4)
(Flotation)

KROKHIN, S.I.

Xanthate absorption along a three-stage wetting perimeter. TSvet. met. 34 no.1:19-26 Ja '61. (MIRA 17:3)

1. Severo-Kavkazskiy gorno-metallurgicheskiy institut.

KLASSEN, V. I. (Prof, Dr. Ing.); KROKHIN, S. I. (B.sc.)

"Contribution to the study of the mode of action of flotation reagents."

report submitted for 6th Intl Mineral Processing Cong, Cannes, 26 May-2 Jun 63.

[Klassen, Chief of Ore-Dressing Lab, A.A. Skochinskiy Mining Inst, Moscow]

[Krokhin, S. I., Asst Lecturer, Holder of Chair for Ore-Dressing, Inst Mining & Metallurgy of the Northern Caucasus]

KROKHIN, V.

Russian floating industrial exhibition. Vnesh.trog. 29 no.7:35 '59.
(MIRA 12:11)

(Industry--Exhibitions)

S/078/62/007/010/006/008
B144/B186

AUTHORS: Morozov, I. S., Krokhin, V. A.

TITLE: Thermal and tensimetric investigations of the systems $NbCl_5$-$AlCl_3$-KCl, $KNbCl_6$-$KTaCl_6$-$KAlCl_4$, and $NbCl_5$-$KTaCl_6$-$KAlCl_4$

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 10, 1962, 2400-2410

TEXT: The following binary systems were newly constructed: $KAlCl_4$-$KTaCl_6$ with a single eutectic at 180°C (composition in mole %: $KAlCl_4$ 42.5, $KTaCl_6$ 57.5); $KTaCl_6$-$KNbCl_6$ forming a complete series of solid solutions; $KAlCl_4$-$KNbCl_6$ with a single eutectic at 201°C (composition in mole %: $KAlCl_4$ 55, $KNbCl_6$ 45); $KTaCl_6$-$NbCl_5$ with a single eutectic at 180°C (69 mole% $NbCl_5$) and demixing as from 70 mole% $NbCl_5$; $KAlCl_4$-$NbCl_5$ with a eutectic at 170°C (73 mole% $NbCl_5$) and demixing as from 79 mole% $NbCl_5$. The ternary system $NbCl_5$-$AlCl_3$-KCl has the following eutectic triple points

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4-phase equilibrium	Composition, mole%			Melting point, °C
	KCl	$NbCl_5$	$AlCl_3$	
E_1 liq$\rightleftarrows AlCl_3 + NbCl_6 + KAlCl_4$	5	45	50	115
E_2 liq$\rightleftarrows KCl + KNbCl_6 + KAlCl_4$	52	33	15	195
E_3 liq$\rightleftarrows KNbCl_6 + KAlCl_4 + NbCl_5$	6	90	4	180

In the quasi-ternary system $KNbCl_6$-$KTaCl_6$-$KAlCl_4$, a eutectic was found in the 3-phase equilibrium liq $\rightleftarrows KAlCl_4$ + solid solution $KTaCl_6 + KNbCl_6$; this eutectic corresponds to the mole% composition $KAlCl_4$ 36, $KNbCl_6$ 31, $KTaCl_6$ 33, and to a melting point of 170°C. Polymorphic decomposition of the hexachlorides was not observed. The liquidus surface shows two crystallization ranges ($KAlCl_4$ and the solid solutions $KNbCl_6$, $KTaCl_6$). In the quasi-ternary system $NbCl_5$-$KTaCl_6$-$KAlCl_4$, a eutectic triple point was determined in the 4-phase equilibrium liq$\rightleftarrows KAlCl_4 + KTaCl_6 + NbCl_5$; this

Thermal and tensimetric ...

S/078/62/007/010/006/008
B144/B186

point corresponded to the mole% composition $KAlCl_4$ 16.5; $NbCl_5$ 57.5, $KTaCl_6$ 26.0 and to a melting point of 170°C. The liquidus surface shows ranges corresponding to the crystallization of the three components with a demixing in the $NbCl_5$ range. The following systems were studied tensimetrically: (1) $NbCl_5-AlCl_3-KCl$; (2) $NbCl_5-TaCl_5-AlCl_3-KCl$; (3) $NbCl_5-TaCl_5-AlCl_3-NaCl$. (1) The vapor pressure of $NbCl_5$ drops considerably with rising KCl content of the melt. (2) and (3) The concentration of $TaCl_5$ increases more than that of $NbCl_5$. There are 13 figures and 11 tables.

SUBMITTED: November 15, 1961

Card 3/3

MOROZOV, I.S.; KROKHIN, V.A.

Thermal and tensimetric study of the systems $NbCL_5$ - $AlCL_3$- KCL, $KNbCl_6$- $KTaCL_6$- $KAlCL_4$, and $NbCL_5$- $KTaCL_6$- $KAlCL_4$. Zhur.neorg. khim. 7 no.10:2400-2410 O '62. (MIRA 15:10)
(Chlorides) (Systems (Chemistry))

MOROZOV, I.S.; KROKHIN, V.A.

Interaction of niobium oxychloride with alkali metal chlorides and the thermal stability of pentachlorooxyniobates. Zhur. neorg. khim. 8 no.10:2376-2380 O '63. (MIRA 16:10)

(Niobium compounds) (Alkali metal chlorides)
(Thermal analysis)

KROKHIN, V.A.; MOROZOV, I.S.

Interaction of pentachloro-oxyniobates with tetrachloro aluminates and the chlorides of alkali metals. Systems K_2NbOCl_5 - $KAlCl_4$ - KCl, Cs_2NbOCl_5 - $KAlCl_4$ - CsCl. Zhur. neorg. khim. 8 no.12:2727-2732 D '63. (MIRA 17:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

KLIMENKO, Yu.G., inzh.; KROKHIN, V.A., inzh.; VISHNYAK, R.G., inzh.

Analysis of the operation of the VSM-125/90 medium-speed rolling mill. Energ. i elektrotekh. prom. no.3:52-54 Jl-S '65. (MIRA 18:9)

KROKHIN, V.M.; DEMIDOV, G.K.

New method for sealing the joints of wire bead rings of pneumatic tires with the prevulcanization method. Kauch. i rez. 23 no.10: 47-51 O '64. (MIRA 18:2)

1. Yaroslavskiy shinnyy zavod.

DEMIDOV, G.K.; KROKHIN, V.M.

Device for tentering cord on impregnating units and calenders. Biul.tekh[illegible].inform.Gos.nauch.-issl.inst.nauch.i tekh.inform 17 no.11:28-30 N '64. (MIRA 18:3)

DEMIDOV, G.K.; KROKHIN, V.M.

Device for cord stretching on impregnator units and calenders. Kauch. i rez. 23 no.9:45-48 S '64.

(MIRA 17:11)

1. Yaroslavskiy shinnyy zavod.

KROKHIN, V. N.

KROKHIN, V. N.

Armyanskiy District - Tea

Tea in Armyanskiy District (Krasnodar Territory). Dost. sel'khoz.
No. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 1953, Uncl.

KHOKHIN, V.N.

Tea

4000 kilograms of tea leaves per hectare. Kolkh. proizv. No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

[illegible], V.V.

Electrochemical mutual conversion of quaternary ammonium compounds. Zhur. prikl. khim. 37 no.10:2323-2328 O '64.

(MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

ZVENIGORODSKIY, G.Z., inzhener; BREKHUNENKO, F.F., inzhener; KROKHIN, V.N.,
inzhener.

Substitution of oxidized heavy residues of petroleum refining for coal-tar pitch in coal briquetting. Nauch.rab. VUGI no.9:111-134 '53. (MLRA 7:6)

1. Laboratoriya briketirovaniya ugley. (Briquettes (Fuel))

KROKHIN, V.N., insh.

Effect of cooling dried briquets on the quality of the finished product. Nauch.trudy po obog.i brik.ugl. no.1:215-221 '58.
(MIRA 12:10)

(Briquets(Fuel))

KROKHIN, V.N., inzh.

Effectiveness of lignite briquetting from a power engineering point of view. Obog. i brik. ugl. no.9:3-12 '59. (MIRA 12:9)

(Briquets (Fuel)) (Lignite)

KROKHIN, V.N., inzh.

Profitableness of briquetting Dniepor Basin lignite. Obog.i brik.ugl. no.12:30-35 '59. (MIRA 13:6)
(Dnieper Basin--Lignite) (Coal preparation)

KROKHIN, V.N., inzh.

Increasing the operating efficiency of steam tubular drum dryers by means of a preliminary slight drying of the coal. Obog.i brik. ugl. no.17:3-25 '61. (MIRA 15:2)

(Coal--Drying)

KROKHIN, V.N., inzh.

Study of the process of coal compression in stamping presses. Obog. i brik.ugl. no.28:38-50 '62. (MIRA 17:4)

KROKHIN, V.N., inzh.

Effect of coal lumpiness on the improvement of its granular properties during preliminary drying. Obog.i brik.ugl. no.27:33-37 '62.
(MIRA 17:4)

KROKHIN, V.N., inzh.

Studying the stability of brown coal briquets. Obog. i brik. ugl. no.26:44-50 '62. (MIRA 17:8)

APTENKAR, P.A., inzh.; KHOKHIN, V.P.

Mechanization of surface haulage. Shakht. stroi. 4 no.3:25-27 Mr '60. (MIRA 13:11)

1. Karagandinskiy institut Giproorgshakhtostroy.
(Karaganda Basin--Mine haulage)

KROKHIN, V.P., inzh.; APTENKAR, P.A., inzh.

Permanent equipment of shafts for mining. Shakht.stroi. 6 no.1:8-12 Ja '62. (MIRA 14:12)

1. Karagandinskiy institut Giproorgshakhtostroy.
(Karaganda Basin--Shaft sinking)
(Coal mining machinery)

APTENKAR, P.A., inzh.; KROKHIN, V.P., inzh.

Rapid shaft sinking with parallel reinforcement. Shakht. stroi. 7 no.10:20-23 O '63. (MIRA 16:10)

1. Giproorgshakhtostroy, g. Karaganda.

APTENKAR, P.A., inzh.; KROKHIN, V.P., inzh.

Economic efficiency of using cable guides. Shakht. stroi. 9 no.10: 9-12 O '65. (MIRA 18:9)

1. Giproorgshakhtostroy, g. Karaganda.

application of the classic theory of differential equations with periodic coefficients -- 15
[illegible] of analysis based [illegible]

[illegible]

[illegible]

KROKHIN, YE.M. [illegible]

Map: UMBOZERO, lake OSU-Am2337 S-91

Krokhin, E.M.: Materialy k Poznaniyu Ozera Umbozera
Izv. Gos. Geogr. Obshch., Vol. 68, pp.211-241, 1936
American Geographical Society, New York, N.Y
Morphology of shores and bottom based on data of 1931.
Map of lake, scale 1:360,000; bathimetric map of northern
part of the lake, scale 1:200[illegible],000.
Area: $67^{\circ}30'$ - $67^{\circ}53'$ N; $34^{\circ}15'$ - $34^{\circ}35'$ E.

⑦

Map: KRONOTSKOYE, Lake. OSU-Am2331 S-194

Krokhin, E.M.: Issledovaniye Kronotskogo Ozera v Marte-Aprele, 1935 g.
Izv. Gos. Geogr. Obshch. Vol. 68, pp.702-727, 1936.
American Geographical Society, New York, N.Y.
Investigations of large lake in Kamchatka. Bathimetric data.
Map, scale 1:260,000
Area: 54°45' N, 160°15' E

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KROKHIN, Ye.M.

Some volcanic formations in the basin of the Malaya Bystraya, Levaya Topolovaya, and Bol'shaya Sarannaya Rivers. Biul.Vulk.sta. no.22: 39-43 '54. (MIRA 8:11)
(Kamchatka--Volcanic ash, tuff, etc.)

KROKHIN, Ye.M.

Study of the quantity of saprophytic bacteria in Lake Dal'neye. Mikrobiologiia 23 no.1:49-52 Ja-F '54. (MLRA 7:2)

1. Kamchatskoye otdeleniye Vsesoyuznogo Tikhookeanskogo nauchno-issledovatel'skogo instituta rybnogo khozyaystva i okeanografii.
(Dal'neye, Lake (Kamchatka)--Bacteria)
(Bacteria--Dal'neye, Lake (Kamchatka))

KROGIUS, F.V.; KROKHIN, Ye.M.

Causes of fluctuations in the amount of Kamchatka sturgeons. Trudy probl.i tem.sov. no.6:144-149 '56. (MLRA 9:11)

1. Kamchatskoye otdeleniye Tikhookeanskogo instituta rybnogo khozyaystva i okeanografii.
(Kamchatka--Sturgeons)

KROGIUS, F.V.; KROKHIN, Ye.M.

Results of research on the biology of sockeye salmon, the state of and numerical fluctuations in their stocks in waters off Kamchatka. Vop.ikht.no.7:3-20 '56. (MIRA 10:3)

1. Kamchatskoye otdeleniye Tikhookeanskogo instituta rybnogo khozyaystva i okeanografii.
(Kamchatka--Salmon)

17(0)
SOV/20-128-3-53/58

AUTHOR: Krokhin, Ye. M.

TITLE: On the Influence of the Number of Males Perished After Spawning of Krasnaya (Oncorhynchus nerka) in a Lake on the Living Conditions of Biogenic Elements

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 626-627 (USSR)

ABSTRACT: In lakes and rivers in Alaska and Kamchatka, where the males of two species of Oncorhynchus (Krasnaya - Onc. nerka and Gorbusha - Onc. gorbuscha) die after fulfilling their task as fecundators, the inflow of phosphates amounts to 1/4 of the total inflow of phosphates (Refs 1-4). In the last decade, the number of Krasnaya males fell from 55,200 (1937-1947) to 9,200 (1948-1958). To answer the question as to whether this circumstance had an effect on the living conditions of the biogenic elements, the author compares the phosphate quantity in the water of Lake Dal'neye during the two above-mentioned periods (Table 1, Fig 1). The point of time towards the end of autumnal circulation was chosen for this purpose. The basic stock of phosphates fell, during the period mentioned, from 6.0 to

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On the Influence of the Number of Males Perished SOV/20-128-3-53/58
After Spawning of Krasnaya (Oncorhynchus nerka) in a Lake on the Living
Conditions of Biogenic Elements

4.3 t, i.e. by nearly 1/3. It is not yet clarified whether the phosphate quantity is maintained, but a falling tendency can already be noticed. Figure 2 shows the vertical phosphate distribution in the water of Lake Dal'neye on August 28, 1948 and August 26, 1958, revealing a perfect parallelism between the number of fish immigrating into the lake for spawning and the phosphate amount in its water. The reduced immigration of Onc. nerka does not only directly affect the stock of fish, but also brings about far-reaching changes in the metabolism of the lake which indirectly - by way of the food supply - reduce the reproduction. There are 2 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Kamchatskoye otdeleniye Tikhookeanskogo instituta rybnogo khozyaystva i okeanografii (Kamchatka Department of the Pacific Institute of Fishing Industry and Oceanography)

PRESENTED: June 3, 1959, by V. N. Shaposhnikov, Academician

SUBMITTED: May 26, 1959

Card 2/2

KROKHIN, Ye.M.

Origin of the thermocline in lakes. Izv. AN SSSR. Ser. geog. no.6:
90-97 N-D '60. (MIRA 13:10)

1. Kamchatskoye otdeleniye Tikhookeanskogo instituta rybnogo khozyaystva i okeanografii.
(Lakes--Temperature)

KROKHIN, Ye.M.

Spawning grounds of the red slamon (Oncorhynchus nerka Walb.); an outline of geomorphology, temperature conditions and hydrochemistry. Vop. ikht. no.16:89-110 '60. (MIRA 14:4)

1. Kamchatskoye otdeleniya Tikhookeanskogo nauchno-issledovatel'skogo instituta rybnogo khozyaystva i okeanografii.
(Soviet Far East—Salmon)

KROKHIN, Ye.M.

Is the basin of Lake Kronotskoye a caldera? Biul. Vulk. sta. no.29:47-50 '60. (MIRA 14:3)

(Kronotskoye, Lake)

KROKHIN, Yevgeniy Mikhaylovich

"The influence of a dimension of admission of red salmon producers on the phosphate regime of spauning lakes."

report to be submitted for the 15th Intl. Congress of Limnology in Madison, Wisconsin, 20-25 Aug 1962.

Kamchatka Dept, Pacific Inst. of Marine Fishery and Oceanography.

PAVLOVSKIY, Ye.N., akademik, glav. red.; MOISEYEV, P.A., otv. red.; SMIRNOV, A.I., zam. otv. red.; BIRMAN, I.B., red.; KAGANOVSKIY, A.G., red.; KROGIUS, F.V., red.; KROKHIN, Ye.M., red.; KURENKOV, I.I., red; LAGUNOV, I.I., red.; PANIN, K.I., red.; SEMKO, R.S., red.; PARIN, N.V., red.

[Salmon fisheries of the Far East; materials] Lososevoe khoziaistvo Dal'nego Vostoka; materialy. Moskva, Nauka, 1964. 201 p. (MIRA 17:9)

1. Soveshchaniye po voprosam lososevogo khozyaystva Dal'nego Vostoka. 3d, Petropavlovsk-Kamchatskiy, 1960. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (for Moiseyev). 3. Kamchatskoye otdeleniye Tikhookeanskogo nauchno-issledovatel'skogo instituta rybnogo khozyaystva i okeanografii (for Semko, Birman, Krokhin, Kurenkov). 4. Kafedra ikhtiologii Moskovskogo universiteta imeni M.V.Lomonosova (for Smirnov).

L 09053-67 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AR6032264 (N) SOURCE CODE: UR/0398/66/000/006/V018/V018

33

AUTHOR: Krokhin, Ye. P.

TITLE: A method for evaluating the discreteness in time for automatic digital computers of ship's course

16 C

SOURCE: Ref. zh. Vodnyy transport, Abs. 6V111

REF SOURCE: Tr. Tsentr. n.-i. in-ta morsk. flota, vyp. 64, 1965, 94-101

TOPIC TAGS: digital computer, ship, discreteness, Kotel'nikov theorem, ship navigation

ABSTRACT: A method was proposed for determining the discreteness of computers of a ship's course. The method is based on analysis of spectral density of yawing processes and the oscillation rate by dead reckoning in order to determine the maximum frequency range in which the total dispersion of rejected harmonics is sufficiently small or at least does not exceed the given accuracy, and from which the original information on the course and velocity was obtained. The theory of random stationary functions and parts of the information theory (Kotel'nikov's theorem) were used in the method. A detailed account of the method was given,

Card 1/2 UDC: 629.1.053.2

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ACC NR: AR6032264 O

and an example was studied in which the discreteness of the course was calculated, using ship's course chart taken during trial voyages of ships of average tonnage. A table, prepared from this chart, is given showing the computation for some mean square errors of the course indicator. Orig. art. has: 2 figures and 5 tables.

SUB CODE: 13/

Card 2/2 nst

MASLOV, S.I.; KROKHIN, Ya.P.

Methods for attaching meteorographs on MI-1 and MI-4 helicopters.
Trudy GGO no.140:79-83 '63. (MIRA 16:12)

ZENKEVICH, V.B., kand.tekhn.nauk; KROKHIN, Yu.I., inzh.

Viscosity of sodium-potassium heat carriers. Izv. vys. ucheb. zav.; energ. 6 no.10:91-97 O '63. (MIRA 16:12)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena kafedroy sushil'nykh i teploobmennykh ustroystv.

KROKHIN, YU. V.

"Automatic Temperature Regulator," by Yu V. Krokhin, Obmen opytom. M-vo radiotekhn, prom-sti SSSR, 1955, Issue 1, pp 4-8, (from Referativnyy Zhurnal -- Mashinostroyeniye, No 3, Feb 57, Abstract No. 5753)

"The article gives a description of the construction and also a diagram of the thermoregulator with its dilatometric heat sensing element which consists of a duraluminum tube, 500mm long and 200 mm in diameter, and a core of steel ST-10 or Invar (in the latter case the sensitivity of the instrument increases with decrease of its dimensions). The travel of the core end in relation to the tube is accomplished by a lever mechanism (with arm ratios of 1:100) provided with contacts which, on reaching a certain temperature at the sensing element location, cuts in or cuts out the magnetic coil of the actuator of the controls attached to the instrument. The instrument has an automatic blocking shift which protects the contacts from burning and eliminates the possibility of sparking during cutin and cutout. The temperature regulating limits of the experimental model of the instrument are from -40 to 300° C." (U)

Sum. 1391

PA 239T28

USSR/Chemistry - Lead Glass Aug 52

"Electron-Microscopic Investigation of the Reduction of Lead After Treatment of Lead Glass in a Reducing Flame," V. I. Shelyubskiy and A. I. Krokhina, Phys Inst, Moscow State U

"DAN SSSR" Vol 85, No 5, pp 1097-1098

Samples of Pb glass contg 30% PbO and 6% PbO were treated in a reducing flame and subjected to electron microscopic study. In both cases tiny crystals of Pb were observed. The glass contg 30% PbO had crystals of 0.01-0.05 microns and 0.1-0.25 microns. The density of the fine crystals was 10^9 per sq cm. The

239T28

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glass contg 6% PbO had crystals of 0.05-0.08 microns. The density was 10^9 per sq cm. Submitted by Acad P. A. Rebinder 26 May 52

239T28

USSR/Metallurgy - Wolfram Powders, Application of Electron Microscope Jan 53

"Study of Wolfram Powders With the Aid of an Electron Microscope," A. I. Krokhina, K. A. Michurina, G. V. Spivak, and others

Zhur Tekh Fiz, Vol 23, No 1, pp 17-22

3

Investigates effect of additions to W powders and reduction methods of metallic W on size and shape of its grains. Summarizes data obtained from studying

270T89

numerous micrographs of powders. Establishes that metallic W particles, even those of smallest size beyond resolution of ordinary microscope, have shape of regular cube disregarding metal grade or technological process.

270T89

SPIVAK, G.V.; KROKHINA, A.L.; LAZAREVA, L.V.

Breakdown of glass by the etching effect of ionic bombardment. Dokl.AN SSSR 104 no.4:579-580a O '55. (MLRA 9:2)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova. Predstavleno akademikom P.A.Rebinderom.
(Glass manufacture--Chemistry) (Ions)

KROKHINA, A.I.

20-5-23/60

AUTHOR: SPIVAK,G.V., KROKHINA,A.I., IAVORSKAIA,T.V., DURASOVA,IU.A.

TITLE: Etching of Dielectrics by Ionic Bombardment. (Travleniye dielektrikov ionnoy bombardirovkoy, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 1001-1003 (U.S.S.R.)

ABSTRACT: The following is shown by the present paper: On the occasion of the bombardment of the surface of a dielectric by means of gasions geometrically regular etching figures may form which reflect the crystal structure of the object. Bombardment with positive ions was carried out in a low pressure discharge. The action of neon ions upon crystalline and amorphous dielectrics was investigated. Reference is made to some previous works dealing with this subject. When the cathode was constructed, the fact was taken into account that cathode spattering is proportional to the density of the ion flux, and that there is less depositing of metal at those points where current density is greater. If, therefore, a greater current density is produced on the surface of the dielectric than at neighboring points of the metal, the dielectric is not powdered with metal. This happens in the case of a periodic development of the potential being caused, so that indentations correspond to the domains of the dielectric to be spattered. The crystalline dielectrics used were quartz, Iceland spar, rock salt, and seignette

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20-5-23/60

Etching of Dielectrics by Ionic Bombardment.

salt. Besides, also the amorphous dielectrica amber and plexiglass were etched. Etching with ions took place on the occasion of different kinds of discharge. For amber and plexiglass the method of ion etching must be selected with particular care; I = 2 - 2,5 ma/cm, V = 1,5 kV and t = 2 - 3 hours. The surfaces of the amber and the plexiglass were uniformly destroyed and the figures of destruction had no geometrical pattern. On the occasion of the etching of quartz with ions in the Z-section, distinctly marked triangles were obtained. Of all dielectrics, quartz is the most difficult to investigate. With a weak ion bombardment no figures at all are formed, and in the case of a heavy bombardment the same figures are obtained as in glass. When rock salt is etched (surface {100}) cubes are formed. The etching figures thus obtained can be used for determining the symmetry of the crystal. This method is simpler and often more reliable than that employed in connection with other processes. (With 3 Illustrations).

ASSOCIATION: Moscow State University "M.V.LOMONOSOV" (Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova

PRESENTED BY: A.V.SHUBNIKOV, Member of the Academy, on 24.1.1957

SUBMITTED: 7.1.1957

AVAILABLE: Library of Congress

Card 2/2

Krokhina, A I.

SOV/109-4-6-27/27

AUTHORS: Gor'kov, V.A., Kofanova, T.I.

TITLE: Inter-departmental Seminar on Cathode Electronics (13th Meeting) (Mezhduvedomstvennyy seminar po katodnoy elektronike) (13-e zasedaniye) (New Item)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 6, pp 1067 - 1068 (USSR)

ABSTRACT: The meeting of the seminar took place on February 2, 1959, at the Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio-engineering and Electronics of the Ac.Sc., USSR). The following lectures were delivered and discussed:

M.I. Yelinson - "Investigation of the Field Emission of Dielectrics Containing Admixtures";

A.I. Krokhina - "Destruction of the Dielectrics Subjected to Ion Bombardment and Heating";

V.A. Shrednik - "Dependence of the Work Function of the Thin-layer Cathodes on the Coverage Region";

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SOV/109-4-6-27/27

Inter-departmental Seminar on Cathode Electronics (13th Meeting)

A.P. Rumyantsev - "Influence of the Temperature Processing on the Work Function of the Compounds Having High Melting Points".

The report gives comprehensive summaries of the lectures presented.

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SOV/48-23-6-18/28

AUTHORS: Krokhina, A. I., Spivak, G. V.

TITLE: Investigation of the Structural Changes of Dielectrics Which Are Under the Influence of Temperature, Chemical Attack, and an Ionic Bombardment (Izucheniye strukturnykh izmeneniy dielektrikov, podvergnutykh vozdeystviyu temperatury, khimicheskogo travleniya i ionnoy bombardirovki)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 6, pp 741 - 743 (USSR)

ABSTRACT: The authors first refer to previous papers by themselves (Refs 1,2), in which they showed that by the bombardment of dielectrics with ions attack figures are produced. These figures show the ionic structure of the crystal. The structure of these figures is similar to that after a chemical attack. In the present investigation, the crystals of a number of dielectrics with different orientation of the crystal axis were prepared. The investigated crystal planes of the various crystals are then given, and the structures obtained in this way (Figs 1-6) are shown by six figures. The method described has certain disadvantages because the focusing of the microlenses depends upon the discharge current and the air pressure in the tube,

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Investigation of the Structural Changes of Dielectrics Which Are Under the Influence of Temperature, Chemical Attack, and an Ionic Bombardment SOV/48-23-6-18/28

and further because the discharge current in dielectrics can be accomplished by the use of metal contact nets.

In order to inhibit the influence of temperature and the variation of ion-current density on the dielectric, tubes with intense water cooling were used. In order to eliminate the disadvantage of the metallic nets, a new method was developed, by means of which the dielectric is heated to such temperatures at which it is in a semiconductor state. By means of the instrument UIT-1 rock salt was treated for 3 hours at a temperature of 400°C, an accelerating voltage of 3 kv, a current of 3 ma, after which it was investigated by means of an electronic microscope. Figure 3 shows the result obtained. By means of this method, the influence exercised by the evaporation of the dielectric and the critical temperature for the intense evaporation of the dielectric were investigated. The result obtained shows that the structure formed by evaporation of the dielectric is identical with those obtained by applying the two other methods. There are 6 figures and 5 Soviet references.

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Physics Faculty, Moscow State Univ

KROKhinA, A.I.

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AUTHORS: Krokhina, A. I., Spivak, G. V. 21

TITLE: On the Problem of Anisotropy of Cathode Sputtering of Dielectrics 21

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 6, pp. 694-697

TEXT: This is the reproduction of a lecture delivered at the 9th All-Union Conference on Cathode Electronics from October 21 to 28, 1959 in Moscow. In the introduction, some papers on the destruction of metal surfaces, dielectrics, and semiconductors by incident ions are discussed, and V. Ye. Yurasov (Refs. 1, 7) is mentioned. In the present paper, experimental results are given which show that an anisotropy of cathode sputtering in the bombardment of dielectrics with ions occurs, which is caused by the structure of the ion beam. First the authors describe the test tube shown in Fig. 1, and the target holder shown in Fig. 2. Figs. 3 and 4 show distributions of deposits on NaCl and KBr crystals which are due to the inhomogeneities of the incident ion beam. The authors are of the

X

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On the Problem of Anisotropy of Cathode Sputtering of Dielectrics

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B019/B067

opinion that in all cases where the target has crystalline structure care must be taken that no influence is exercised by foreign factors (inhomogeneities of the incident ion beam). There are 4 figures and 9 references: 8 Soviet and 1 American.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gos. universiteta im. M. V. Lomonosova
(Physics Department of Moscow State University imeni M. V. Lomonosov)

Card 2/2

SPIVAK, G.V.; KROKHINA, A.I.; TEREMETSKAYA, A.G.; TERNOVSKAYA, M.V.

Studying the microstructure of ore minerals by ion bombardment.
Zap.Vses.min.ob-va 90 no.6:695-697 '61. (MIRA 15:2)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.
(Mineralogy)

S/070/62/007/001/021/022
E073/E335

AUTHORS: Kolontsova, Ye.V., Krokhina, A.I. and Vakhomchik, L.P.

TITLE: Selective etchings of aluminium crystals

PERIODICAL: Kristallografiya, v. 7, no. 1, 1962, 152 - 153

TEXT: The concentration of chemically-produced etch patterns depends on the method of growing the crystal, its purity and the orientation of the etched surface of the crystal. According to Braun et al (Ref. 8: Philos. Mag., 3, 35, 1312-1317, 1958), the maximum is achieved for surfaces of the type {111}. Defects in the structure of the crystal, which arise during deformation, are not detected by this method of etching: the distribution of etch pits and their concentration is about equal on a polished surface of a crystal in the deformed and in the non-deformed states. On the basis of results of layer-by-layer etching and data published in the literature, it is concluded that without special ageing treatment of the investigated crystal the etching agent of Lacombe, Beaujard and Wyon will reveal distortions in the crystal structure which occurred during growth; accumulations of dislocations corresponding to

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Selective etchings of E073/E335

boundaries of disorientated sections of the crystal can be reliably detected. Ageing undoubtedly changes the substructure of the investigated crystal and this is highly undesirable when studying the influence of deformation or irradiation on the structure of the crystal. Therefore, the authors have attempted to find methods of etching which will reveal "fresh" defects. Observations have shown that electrolytic and ion-bombardment etching reveal "fresh" dislocations arising in the crystal during the process of deformation by shear. This is illustrated in microphotographs of aluminium single crystals which show that the slip traces appear in specimens etched by means of an electrolyte as well as in repolished specimens that have been subsequently etched by ion bombardment. Details are given on the conditions of electrolytic and ion-bombardment etching in the applied experiments. There is 1 figure.

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S/070/62/007/001/021/022
E073/E335

Selective etchings of ....

ASSOCIATION Moskovskiy gosudarstvennyy universitet
im. M.V. Lomonosova
(Moscow State University im. M.V. Lomonosov)

SUBMITTED: July 18, 1960 (initially)
September 9, 1961 (after revision)

Card 3/3

KROKHINA, A.I.; SPIVAK, G.V.; RESHETNIKOV, A.M.; ZHELNINSKAYA, R.I.

Electron-microscopic study of the structure of ceramic materials revealed by ionic etching. Izv. AN SSSR. Ser. fiz. 27 no.9: 1224-1227 S '63. (MIRA 16:9)

(Electron microscopy) (Ceramic materials--Testing)

SPIVAK, G. V.; KROKHINA, A. I.; SHAKMANOV, V. V.

"Investigation of glass structure by the method of ion bombardment etching."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

[illegible]

[illegible] NR AP4045305

[illegible] of the [illegible]

KROKHINA, A.I.; SPIVAK, G.V.

Destruction of ceramics and glasses by ion bombardment. Izv. AN SSSR. Ser. fiz. 28 no.9:1483-1487 S '64. (MIRA 17:10)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.

1. KIM, A. KH., KROKHINA, A. S. ; Engs.

2. USSR (600)

4. Looms

7. Zh-13 jacquard apparatus. Tekst. prom. 12 no. 12 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

69-20-3-6/24

AUTHORS: Sandomirskiy, D.M.; Margolina, Yu.L.; Dogadkin, B.A.; Krokhina, L.S.

TITLE: Ionic Deposition From Carboxylic Divinylstyrene Latexes (Ionnoye otlozheniye iz karboksilsoderzhashchikh divinilstirol'nykh lateksov)

PERIODICAL: Kolloidnyy zhurnal, 1958, vol XX, Nr 3, pp 293-297 (USSR)

ABSTRACT: The manufacture of rubber products immediately from latex by means of ion deposition is based on the interaction of the cations of the electrolyte diffused in the latex and the protective shell of the globules. The result of this interaction is the astabilization of the globules and the formation of a gel. Synthetic rubbers containing carboxyl groups in the molecule form very resistant vulcanizates. In the article, two carboxyl-containing divinylstyrene latexes are investigated with regard to ion deposition. It is shown that at an increase of the pH of the latexes from 4 - 10.1 the surface tension decreases from 54.2 - 40.1 dyn/cm. The change in viscosity is negligible in latexes containing 4 - 10% metacrylic acid. Graph 1 shows that an increase in the pH value causes a decrease in the speed of ion de-

Card 1/2

69-20-3-6/24

Ionic Deposition From Carboxylic Divinylstyrene Latexes

position. The increase of the pH also decreases the relative elongation and the ultimate swelling of the latex, but the tensile strength and the equilibrium modus increase. In the process of ion deposition and the subsequent treatment of the films obtained, calcium chloride interacts not only with the protective substances of the latex globules but also with the carboxyl groups of the polymer molecules, which is the cause of the structurization. The calcium atoms may combine with two carboxyls in two different polymer molecules connecting them by stable chemical cross bonds.
There are 5 graphs, 2 tables, and 4 references, 2 of which are Soviet and 2 English.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova (Moscow Institute of Fine Chemical Technology imeni Lomonosov). Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy, Moskva (Scientific Research Institute of Rubber and Latex Products, Moscow)

SUBMITTED: March 1, 1958

Card 2/2

1. Rubber products--Production 2. Latex--Applications 3. Ion --Deposits--Processes

S/138/60/000/005/002/012
A051/A029

AUTHORS: Tutorskiy, I.A., Krokhina, L.S., Dogadkin, B.A.

TITLE: The Interaction Between Natural Rubber 15 and Maleic Anhydride 1

PERIODICAL: Kauchuk i Rezina, 1960, No 5, pp. 3 - 6.

TEXT: The reaction mechanism between natural rubber and maleic anhydride during the rolling process was investigated. The experimental procedure is outlined and the concentration of the maleic anhydride, the distance between the rollers, the temperature of the rollers and that of the oxygen in the medium were studied as to their effect on the addition reaction of the maleic acid and the rubber, as well as the structuralizing process. The results of the experiment are discussed. Both the rate of the gel formation and its maximum amount increase with an increase in the maleic anhydride concentration when the natural rubber is masticated in open air (Fig. 1) The amount of the gel increases until the maleic anhydride is all spent (Fig. 2). It was shown that the addition reaction of the maleic anhydride, when the content of the latter is no more than 5% in the mixture, follows the first order reaction equation. It was also found that in the

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A051/A029

The Interaction Between Natural Rubber and Maleic Anhydride

rolling process of the natural rubber with maleic anhydride, the reactions of addition of the maleic anhydride to the rubber and the structuralizing process are parallel. In rolling with a clearance between the rollers, the structuralizing takes place with an inductive period, which decreases with an increase in the concentration of the maleic anhydride. The rate of the structuralizing during rolling in an argon atmosphere is considerably higher than in air. An increase in the temperature from 20 to 40°C when masticating the rubber in air causes destruction of the formed gel and has no practical effect on the quantity of the added maleic anhydride. There is a linear relationship between the quantity of added maleic anhydride and the amount of formed gel. There are 5 figures and 11 references: 1 Soviet, 4 English, 1 German and 5 French.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M.V. Lomonosov)

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15.9000 1436, 2209

AUTHORS: Dogadkin, B. A., Tutorskiy, I. A., Tugov, I. I., Al'tzitser, V. S., Krokhina, L. S., Shershnev, V. A.

TITLE: The chemical modification of vulcanizates. I. The reaction of vulcanizates with styrene, methyl methacrylate, and isoprene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 5, 1961, 729-733

TEXT: The chemical modification of vulcanizates is completely new and hardly mentioned in literature. The purpose of the present paper was to study the chemical modification process caused by copolymerization of the vulcanizates with the monomer. Natural rubber (I) or a mixture of natural rubber and butadiene styrene rubber СКС-30 (SKS-30) (II) were disintegrated to particles of about 1 mm, scrubbed in the Soxhlet with acetone, and filled into a weighed ampulla. The monomer (purified styrene, methyl methacrylate, or isoprene) was added in quantities assuring the uniform swelling of the vulcanizate. Then the ampulla was sealed and heated in

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The chemical...

an oil thermostat. Conversion of monomer and yield in graft polymer were determined by weight. The product of copolymerization was extracted with the hot solvent of the formed homopolymer: methyl ethyl ketone for polystyrene, acetone for polymethyl methacrylate, benzene for polyisoprene. In order to initiate the copolymerization process the vulcanizates were ozonized first of all in a suspension of CCl_4 to introduce functional (probably peroxide) groups. One has made use of the ozonizer developed by the Kafedra gazovoy elektrokhimii MGU im. Lomonosova (Department for Gas Electrochemistry of the Moscow State University imeni Lomonosov). The experimental temperatures were: 60, 100, 110, 150, and 180°C. The curves of kinetic copolymerization of non-ozonized I and II are represented in Figs. 2a and 5. In case the vulcanizate had been ozonized previously, a large fraction of the isoprene added polymerized already at 60°C. A considerable part of the polymerized isoprene forms with the vulcanizate a graft polymer (Fig. 6). Also for the copolymerization of methyl methacrylate with vulcanizate, its previous ozonizing raises the reaction rate and yield in graft polymer (Fig. 7). The active centers of the rubber existing in the vulcanizate (double bonds and α-methylene groups)

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are able to act as branching points in the chain of the trimeric polymer and, thus, form the graft polymer. Moreover, the initial polymerization may be effected by oxygen-containing groups existing on the surface of the crushed vulcanizate. The surface increase effected by adsorption of monomers on the crushed polymerizate also accelerates the reaction. When polymerizing the non-ozonized vulcanizates with styrene at 150-180°C, the polymerization reaches its maximum already after the first 2 to 3 hr and then remains constant, since the thermopolymerization of styrene is practically completed. With a decrease in temperature of polymerization the yield in copolymers increases as compared to the total monomer polymerized. Yu. M. Yemel'yanov assisted in the experiments. There are 7 figures and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The two references to English-language publications read as follows:
Ref. 1: R. I. Ceresa, W. F. Watson, Trans. and Proceed 35, 19, 1959.
Ref. 4: I. Green, E. F. Sverdrup, Industr. and Engng. Chem. 48, 2138, 1956.

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ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. Lomonosova (Moscow Institute of Fine Chemical Technology imeni Lomonosov) Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi (All-Union Scientific Research Institute of Film Materials and Artificial Leather)

SUBMITTED: July 25, 1960

Fig. 2: kinetics of copolymerization: Legend: a) Vulcanizate of natural rubber with styrene; 6) vulcanizate of natural + SKC-30 rubber with styrene. Full-line curves = styrene conversion; broken-line curves = yield in graft polystyrene. Temperature of polymerization: 1) = 110°C; 2) = 150°C; 3) = 180°C. c) time of polymerization, hr.

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AUTHORS: Kuleznev, V.N.; Krokhina, L.S.; Lyakin, Yu.I.; Dogadkin, B.A.

TITLE: Investigation of the structure of solutions of polymer mixtures by the light scattering method

SOURCE: Kolloidny*y zhurnal, v. 26, no. 4, 1964, 475-480

TOPIC TAGS: light scattering, polystyrene polyisobutylene toluene system, refractive index, polymer association, apparent molecular weight, polystyrene, polystyrene association, asymmetry of light scattering, second virial coefficient, true solution, emulsion, colloid

ABSTRACT: This study of light scattering (at R''_{45}, R''_{9}, and R''_{135}) in the polystyrene-polyisobutylene-toluene system in which the refractive indices of the polyisobutylene ($M = 1.2 \times 10^6$) and toluene are equal provided new proof of the increased degree of association of one polymer upon the addition of a second polymer. Optical densities of the solutions illuminated with monochromatic light of 5460 and 4360A were measured on the FEKN-56 photoelectric nephelometer. The association of polystyrene, i.e., the apparent molecular

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weight, and the asymmetry of the scattering increased and the second virial coefficient diminished on addition of the optically invisible polyisobutylene. Quantitative measurements of the degree of association are possible only on double extrapolation of the light scattering to zero angle and zero concentration. On changing in concentration a mixture of two polymers may pass from a true solution to a rapidly separating emulsion via a stable intermediate colloid state. For a 1:1 mixture of polystyrene and polyisobutylene the true solution exists up to a concentration of 0.7 gm. of the mixed polymers per 100 ml. toluene, and the emulsion separates when the concentration exceeds about 1.2 gm./100 ml. "The authors sincerely thank V.E. Eskin for participation in evaluating the results and I.M. Bel'govsk for permitting work on the photoelectric nephelometer." Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Moscow Institute of Fine Chemical Technology)

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